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**Question Paper Code: 37304**

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2022

Seventh Semester

Electrical and Electronics Engineering

01UEE704 - ELECTRIC POWER UTILIZATION AND ENERGY CONSERVATION

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. What are the disadvantages of electric traction?
2. Name the various methods of traction motor control.
3. What is meant by luminance?
4. Examine illumination law.
5. Compare DC welding and AC welding.
6. Point out advantages of electric heating.
7. What is meant by solar collector? Mention its types?
8. What is meant by solar energy?
9. Define power coefficient in wind energy conversions.
10. What are the features of VAWT?

PART - B (5 x 16 = 80 Marks)

11. (a) (i) What are the various types of electric braking used in traction? Discuss in detail. (10)  
(ii) Explain in detail about the choice of an electric motor. (6)

Or

- (b) (i) A suburban train has a maximum speed of 70 kmph. The schedule speed including a station stop of 30 seconds is 45 kmph. If the acceleration is 1.5 kmphs, Find the value of retardation when the average distance between stops is 4 km. (10)
- (ii) Discuss the various factors affecting the scheduled speed. (6)
12. (a) (i) Explain the principle of operation and working of a mercury vapour lamp. (8)
- (ii) Describe with a neat sketch the principle of operation of a fluorescent lamp. Mention the function of each component. (8)
- Or
- (b) Summarize the design procedure for factory lighting system. (16)
13. (a) Discuss in details about any two types of resistance welding. (16)
- Or
- (b) (i) Examine the induction heating? what are the characteristics of induction heating? (8)
- (ii) What are the types of ARC furnace? Describe the operation of them in detail. (8)
14. (a) Analyze the effect of solar radiation on tilted surface. (16)
- Or
- (b) (i) Derive the equation for useful energy gain for flat plate solar collector. (8)
- (ii) Explain with neat sketch, solar radiation geometry. (8)
15. (a) With a neat diagram, explain how wind energy can be converted into electrical energy. (16)
- Or
- (b) Describe the different types of generators employed for WECS. (16)